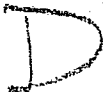


USSR

UDC 621.397

  
~~DRUZIN~~, Ya. V.

"Code-Coordinate Conversion in a Television Display"

Materialy nauchno-tekhn. konferentsii. Leningr. elektrotekhn. in-t svyazi.  
Vyp. 3 (Materials of the Scientific and Technical Conference. Leningrad  
Electrotechnical Communications Institute. Vyp.3), Leningrad, 1970, pp  
105-109 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8G241)

Translation: This article contains an analysis of methods of technical  
realization of a code-coordinate converter for various degrees of discreteness  
of reading. A practical schematic of the device is presented.

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USSR

UDC 541.136

DRUZHININ, N. G., ONISHCHUK, V. A., and CHIZMADZHEV, YU. A., Moscow

"Anomalous Gas Flow Into a Liquid Through a Porous Hydrophobic Membrane"

Moscow, Elektrokimiya, Vol 8, No 5, May 72, pp 686-689

Abstract: To achieve a stable performance of a fuel cell, it is necessary to prevent gas leakage into the electrolyte chamber through the porous electrode. Several authors noted that the reason for this process is due to the Stefan's vapor stream from the liquid through the capillaries into the gas. In this paper a quantitative theoretical treatment of this problem is given. Starting with a capillary equilibrium situation in hydrophobic pore, three positions are possible for the meniscus during gas expulsion of liquid from the capillary. The pressure differential  $\Delta p = p_g - p_l$  equals to  $2 \sigma \cos \theta / r_0$  for the equilibrium situation, and increases to a maximum value of  $2 \sigma \sin \theta / r_0$ , finally dropping to zero after the meniscus reaches the external surface of the capillary. Mathematical formulae have been developed describing this gas leakage as a function of temperature.

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Corrosion

USSR

UDC 620.193:669.018.25

ZHILIN, V. A., and DRUZHNIN, V. M., Rostov Scientific Research Institute of the Technology of Machine Building

"Investigation of the Electrochemical Corrosion of Hard Alloys"

Kiev, Poroshkovaya Metallurgiya, No 8, Aug 70, pp 68-71

Abstract: Results are presented of an investigation of electrolytic corrosion of VK8, T15K6, and T30K4 hard alloys. Sulfur emulsions, which are widely used for cooling in the process of cutting, served as the electrolytes. With an increase of current density from 0.5 to 35 ma/cm<sup>2</sup> the intensity of the corrosion of titanium-tungsten hard alloys increased 60-fold according to the parabolic law. The dependence of the corrosion intensity on the current density of tungsten-cobalt alloys has an inflection in the area of 10-12 ma/cm<sup>2</sup> current density. Up to the point of inflection the corrosion intensity of tungsten-cobalt hard alloys is higher than that of titanium-tungsten-cobalt, the current densities being equal.

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1/2 024 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--LIQUID CORROSION OF HARD ALLOYS AT ELEVATED TEMPERATURES -U-

AUTHOR-(02)-ZHILIN, V.A., DRUZHININ, V.M.

COUNTRY OF INFO--USSR

SOURCE--POROSH. MET. 1970, 10(2), 95-7

DATE PUBLISHED-----70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS

TOPIC TAGS--HARD ALLOY, METAL CUTTING, CORROSION, CEMENTED CARBIDE,  
CUTTING TOOL, SULFUR, CUTTING FLUID, METAL COOLING/(U)UK8 HARD ALLOY,  
(U)T15K6 CEMENTED CARBIDE, (U)T14K8 CEMENTED CARBIDE, (U)T30K4 CEMENTED  
CARBIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1996/1677

STEP NO--UR/0226/70/010/002/0095/0097

CIRC ACCESSION NO--AP0118655

UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0118655

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CORROSION AT ELEVATED TEMPS. WAS TESTED UNDER CONDITIONS WHICH SIMULATED METAL CUTTING WITH A HARD METAL CUTTING TOOL COOLED BY A COOLING FLUID. AT 20-300DEGREES THE CORROSION WAS NEGLIGIBLE. ABOVE THIS TEMP., CORROSION INCREASED SHARPLY, AND ATTAINED A MAX. AT 600-50DEGREES. AT 800-850DEGREES A VAPOR JACKET WAS FORMED AROUND THE SPECIMEN, THEREBY BREAKING THE CONTACT BETWEEN THE COOLING FLUID AND THE SPECIMEN; THE RATE OF CORROSION UNDER THESE CONDITIONS DROPPED SHARPLY. CORROSION WAS 5-10 TIMES HIGHER IN A SULFURIZED FLUID THAN IN WATER. OF THE 4 ALLOYS TESTED T30K4 CORRODED LEAST, T14K8 AND T15K6 CORRODED MOST, WHEREAS THE HARD ALLOY VK8 WAS BETWEEN THE 2 EXTREMES. FACILITY: ROSTOV.-NA-DONU NAUCH.-ISSLED. INST. TEKHNOLOG. MASHINOSTR., ROSTOV-ON-DON, USSR.

UNCLASSIFIED

USSR

UDC: 51:330.115

TSOY, A. Kh., TSKHAY, S. M., DRUZHININ, V. N.

"On Scheduling Excavator Traffic as a Problem of Several Traveling Salesmen"

Tr. In-ta Gorn. dela AN KazSSR (Works of the Institute of Mining, Academy of Sciences of the Kazakh SSR), 1971, 45, pp 9-13 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V536)

Translation: The scheduling of the movements of excavators in quarries is formulated as a problem of several traveling salesmen. Cases with limitations on the length of routes and cycles are considered. Authors' abstract.

1/1

USSR

UDC: 51:330.115

DRUZHININ, V. N.

"Dynamic Planning of Excavator Operation"

Tr. In-ta gorn. dela. AN KazSSR (Works of the Institute of Mining,  
Academy of Sciences of the Kazakh SSR), 1971, 45, pp 14-17 (from RZh-  
-Kibernetika, No 9, Sep 71, Abstract No 9V535)

Translation: A mathematical model is presented for the weekly and daily  
operation of excavators with certain goal functions. Author's abstract.

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USSR

UDC 535

PELETSKIY, V. E., DRUZHININ, V. P.

"Experimental Study of the Integral Hemispherical Degree of Blackness of Refractory Metals and Alloys"

V sb. Teplofiz. svoystva tverd. veshchestv. (Thermophysical Properties of Solids -- Collection of Works), Moscow, "Nauka", 1971, pp 143-146 (from RZh-Fizika, No 7, Jul 71, Abstract No 7D962)

Translation: The characteristic features of experimental devices developed for the precision study of the integral hemispherical degree of blackness and specific energy resistance of single crystal and polycrystalline samples of refractory metals and alloys are described. The error of measurement did not exceed  $\pm 5-6\%$  for the degree of blackness and  $\pm 1.0-1.5\%$  for the specific energy resistance. Poly- and single-crystals of molybdenum, alloys of molybdenum with rhenium, pure rhenium, alloys of nickel with rhenium, and other materials were investigated. 10 ref. Authors abstract.

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USSR

UDC 669-172:541.12.036

PELETSKIY, V. E., DRUZHININ, V. P., and SOBOL', Ya. G.

"Thermophysical Properties of Monocrystalline Molybdenum in the High-Temperature Area"

Monokristally Tugoplavkikh i Redkikh Metallov [Single Crystals of Refractory and Rare Metals -- Collection of Works], Nauka Press, 1971, pp 85-89

Translation: The heat conductivity coefficient, specific electrical resistivity, and integral hemispherical degree of blackness of monocrystalline molybdenum are studied. The measurements were performed in the 1,000-2,200°K interval on specimens with various crystallographic orientations of growth axes. Measurements of the degree of blackness were performed both on cylindrical and on flat specimens with predetermined surface orientation. The results show good correspondence with the data for polycrystals of the same degree of purity, and confirm the isotropic nature of these properties of single crystals with cubic lattices. 2 Tables; 2 Figures; 6 Bibliographic References.

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AA0040664

UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent,

1/70

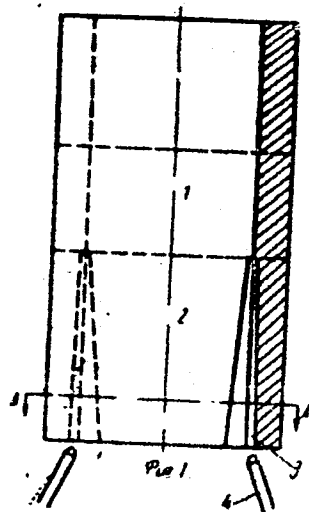
240199 CONTINUOUS CASTING MOULD has two zones, top (1) and bottom (2), both profiled to suit the billet cast though in the corners of the lower zone there are downwards expanding slots (3) or grooving arranged so that the rib portions of the billet opposite these slots do not come into contact with the walls of the mould. Special jets arranged in these corners spray on water or steam for cooling purposes. The height of the two mould zones, depth and width of the slots in the lower zone are all determined by the section and casting rate of the billet. All four ribs are cooled to the same extent.

AUTHORS: Druzhinin, V. P.; Bashkov, V. A.; and

Martynov, O. V.

19750257

AA0040664



7.2.66 as 1053520/22-2. BRUZHININ, V.P. et al. (18.8.69)  
Bul 12/21.3.69. Class 31 b 2. Int.Cl. B 22d.

19750258

USSR

UDC 8.74

KURIL'CHIK, I. V., DRUZHININ, V. S.

"Some Problems of Organizing the Dictionary Library"

V sb. Ekon.-mat. metody i programmir. plan.-ekon. zadach (Mathematical Economic Methods and Programming Economic Planning Problems--collection of works), Moscow, 1972, pp 213-216 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V448)

Translation: The dictionary library of the main computation center of the USSR Gosplan is a set of files of dictionary information, technical storage media and services to insure functioning of it. The dictionary library is a part of the information library and is designated for storage and maintenance of the dictionary information files.

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USSR

UDC 539.389.3

DRUZHININ, V. V., DURNEV, V. D., and KURENNYKH, L. K., Verkh-Isetsk Metallurgical Plant, Sverdlovsk, and Scientific Research Institute LEO "Elektrosila," Leningrad

"Aging Electrical Steel in a Magnetic Field"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 30, No 6, Dec 70, pp 1324-1325

Abstract: In the operation of magnetic systems of electrical machines, electrical steel is subjected not only to the action of increased temperature but also to the action of a magnetic field. For this reason it was deemed advantageous to study the aging of electrical steel in a magnetic field inasmuch as there are no data about this question in the literature.

A low-alloy hot-rolled steel was chosen for experimentation with samples made from strip cut to size 0.5 x 250 mm with a total weight of 1 kg. Specific losses were measured by the absolute wattmeter method in a small Epshteyn unit. Aging samples in the presence of a magnetic field was done by two methods:

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USSR

DRUZHININ, V. V., et al, Fizika Metallov i Metallovedeniye, Vol 30, No 6, Dec 70, pp 1324-1325

1. A special Epshteyn unit was made with thermally insulated magnetic and measuring coils. After determining the initial specific losses  $P_0$  a sample was placed in the thermostat, a part of the Epshteyn unit, and an alternating current was sent to the magnetic coil. After maintaining the Epshteyn unit at 120°C for 120 hours the sample was taken from the thermostat and specific loss measured at room temperature  $P_1$ . The aging coefficient was determined by the formula:  $(P_1 - P_0)100\%/P_0$ . A second batch of identical samples also were aged in the unit but without switching on the magnetizing current.

2. A sample was placed in a solenoid which was then placed in the thermostat. Magnetization of the sample was conducted in an open magnetic circuit. The external magnetic field was constant (1000 and 3000 a/m) and variable (3000 a/m) at a frequency of 50 hz. Specific loss was determined in the same manner as described above.

For samples aged by method 1, those having a  $P_0 = 2.80 - 3.00$  w/kg were then aged by the second method. From the data obtained it was found that both

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USSR

DRUZHININ, V. V., et al, Fizika Metallov i Metallovedeniye, Vol 30, No 6, Dec 70, pp 1324-1325

constant and variable magnetic fields increase aging of electrical steel. The variable magnetic field increased aging by a two-three-fold magnitude increase in the aging coefficient. The effect of the constant field was much weaker but did occur. The effect of the magnetic field on the aging process may be caused by several reasons. In a constant field one of the causes may be the residual magnetization of magnetic particles. Here the greater loss was associated with the effect of free strips around inclusions which have an effect on the magnetic structure of the matrix. Under the action of a variable magnetic field the process of aging, in all probability, is significantly activated by periodic magnetostrictive strains of the crystal lattice. An increase in the aging coefficient in a magnetic field was also associated with interaction of the external field with the magnetic field of dislocations which accompany their movements. Dislocations moving under the action of the field are stopped near barriers and the concentration of impurity atoms is increased.

3/3

1/2 026 UNCLASSIFIED PROCESSING DATE--09OCT70  
TITLE--MAGNETIC AND STRUCTURAL CHARACTERISTICS OF COLD ROLLED TRANSFORMER  
STEEL WITH RIBBED STRUCTURE AND LOW SPECIFIC LOSSES -U-  
AUTHOR-(04)-DRUZHININ, V.V., PRASOVA, T.I., CHISTYAKOV, V.K., KURENNYKH,  
L.K.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(2), 226-32

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--TRANSFORMER STEEL, COLD ROLLING, METAL TEXTURE, GRAIN SIZE,  
CRYSTAL STRUCTURE, MAGNETIC PROPERTY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1995/0201

STEP NO--UR/0048/70/034/002/0226/0232

CIRC ACCESSION NO--AP0115905

UNCLASSIFIED



2/2 026

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0115905

ABSTRACT/EXTRACT--(U) CP-0- ABSTRACT. TO PRODUCE A COLD ROLLED TRANSFORMER STEEL WITH A RIBBED TEXTURE AND SP. LOSSES  $\rho_{H15-50}$  EQUALS 0.9-1.0 W-KG THE FOLLOWING CONDITIONS MUST BE FULFILLED. THE PRESENCE OF STRONGLY PRONOUNCED CRYSTALLOGRAPHIC TEXTURE; THE DEGREE OF PERFECTION OF THE MAGNETIC TEXTURE SHOULD BE SUCH THAT GAMMA EQUALS (1-3) TIMES 10 PRIME NEGATIVE 6; THE AV. GRAIN SIZE SHOULD BE MAINTAINED AT 1-4 MM; THE SUM TOTAL OF C, S, N, AND AL IMPURITIES IN THE STEEL SHOULD BE SMALLER THAN 0.01PERCENT. FACILITY: VERKH-ISETSKII MET. ZAVOD, USSR.

UNCLASSIFIED

1/2 043 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--CAUSES OF THE BRITTLENESS OF HOT ROLLED TRANSFORMER STEEL -U-

AUTHOR--(03)-DRUZHININ, V.V., CHERNIKOVA, N.V., POLZUNOVA, YE.V.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(2), 333-5

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--TRANSFORMER STEEL, GRAPHITE, METAL BRITTLENESS, GRAIN SIZE,  
SHEET METAL, SURFACE ROUGHNESS, ALLOY DESIGNATION, HOT ROLLING, ALLOY  
COMPOSITION, PLASTIC DEFORMATION, SILICON STEEL/(U)E43 TRANSFORMER  
STEEL, (U)E42 TRANSFORMER STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1997/1528

STEP NO--UR/0048/70/034/002/0333/0335

CIRC ACCESSION NO--AP0120309

UNCLASSIFIED

2/2 043

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0120309

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THREE MELTS OF STEELS E42 AND E43  
CONTG. SI 4.15-4.25, C 0.08-0.09, AL 0.08-0.10, AND S 0.002-0.003PERCENT  
WERE STUDIED. OUT OF EACH MELT, 288 SAMPLES WERE TAKEN, AND THE NO. OF  
BENDS OF THE SAMPLES AS WELL AS THE THICKNESS OF THE METAL SHEET WERE  
DETD. THE GRAIN SIZE AND THE AMT. OF GRAPHITE WERE DETD. ON THE FRONT  
SECTIONS. THE EFFECT OF THE METHOD OF SCALE REMOVAL ON THE PLASTIC  
PROPERTIES WAS ALSO STUDIED BY: (A) ETCHING IN SOLNS. OF (200 G H SUB2  
SO SUB4 PLUS 40 G NACL)-L., AND 120 G FE SUB2 (SO SUB4) SUB3.9 H SUB2  
O-L.; (B) THE MECH. METHOD, AND (C) POLISHING OF SAMPLES IN A SOLN. OF  
90 ML H SUB2 O SUB2 PLUS 10 ML H SUB3 PO SUB4 PLUS OXALIC ACID. THE  
FOLLOWING EQUATION WAS OBTAINED ON THE BASIS OF DETN. OF THE NO. OF  
BENDS N DEPENDING ON THE THICKNESS T, GRAIN SIZE Z, AMT. OF GRAPHITE G,  
AND THE SURFACE ROUGHNESS P:  $N \text{ EQUALS } 5.5 Z \text{ MINUS } 5.8 T \text{ MINUS } 0.086 G$   
 $\text{MINUS } 0.079 P.$  FACILITY: VERKH ISETSKII MET. ZAVOD, USSR.

UNCLASSIFIED

1/2 039 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--EFFECT OF PLASTIC DEFORMATION AND RECOVERY ON THE MAGNETIC  
PROPERTIES OF TRANSFORMER STEEL CRYSTALS -U-  
AUTHOR--(05)-BRASHEVAN, G.A., VEKSLER, A.Z., DRUZHININ, V.V., MOLOTILOV,  
B.V., NOVIKOV, V.F.  
COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34 (21)-322-3

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--PLASTIC DEFORMATION, TRANSFORMER STEEL, METAL CRYSTAL, SHEET  
METAL, MAGNETIC PROPERTY, MAGNETOSTRICTION, CRYSTAL DISLOCATION, ALLOY  
COMPOSITION, METAL ROLLING, SILICON STEEL, HYDROGEN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1997/1529

STEP NO--UR/0048/70/034/002/0322/0328

CIRC ACCESSION NO--AP0120310

UNCLASSIFIED

2/2 039

UNCLASSIFIED

PROCESSING DATE--23OCT7

CIRC ACCESSION NO--AP0120310

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LARGE CRYSTALS CUT OUT FROM TRANSFORMER METAL SHEET, 0.35 MM THICK, REFINED IN H (1850DEGREES, 4 HR) AND UNDER VACUUM (1100DEGREES, 4 HR) WERE STUDIED. AFTER REFINING, THE STEEL CONTAINED SI 2.9, C 0.004, N 0.005, AND S 0.003PERCENT. STUDIES OF THEIR MAGNETIC STRUCTURE (BY THE POWDER METHOD), AS WELL AS OF DISLOCATION DS. WERE MADE AT THE SAME SPOT OF THE SAMPLE. SP. CORE LOSSES, CUERCIVE FORCE, H SUBC, AND MAGNETOSTRICTION WERE MEASURE. ROLLING IN THE (001) DIRECTION PRODUCED A STRUCTURE WITH A MUCH LOWER DISLOCATION D. THAN ROLLING IN THE (110) DIRECTION. HOWEVER, WITH SMALL DEFORMATIONS H SUBC (001) LARGER THAN H SUBC (110). THE SIMULTANEOUS ACTION OF STRESSES AND DISLOCATION DS. LED TO A CHANGE IN DELTA H SUBC. A LINEAR CORRELATION WAS NOTED BETWEEN H SUBC AND SP. CORE LOSSES. FACILITY: TSNICHM IM. BARDINA, MOSCOW, USSR.

UNCLASSIFIED

Acc. Nr.: APO029430

Ref. Code: UR 0297

PRIMARY SOURCE: Antibiotiki, 1970, Vol 15, Nr 1, pp 81-84

EFFECT OF OLEANDOMYCIN PRESENCE IN TRIACETYLOLEANDOMYCIN  
ON DETERMINATION OF TRIACETYLOLEANDOMYCIN BIOLOGICAL ACTIVITY

A. Ye. Tebyakina, Ye. N. Druzhinina, D. V. Suvorkina

National Institute for Antibiotics, Moscow

Presence of oleandomycin in triacetyloleandomycin preparations had a marked effect on determination of triacetylcleandomycin biological activity by the agar-diffusion method using as the test-microbe Bac. mycoides NV resistant to tetracycline. An increase in the activity of triacetyloleandomycin in dry mixtures with tetracycline was observed during storage or preparation. The phenomenon may be attributed to formation of oleandomycin with a different nature of diffusion to agar.

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DRUZHININ, Yu. P.

EFFECT OF FLIGHT CONDITIONS ON THE RADIOSENSITIVITY OF HYDROGEN BACTERIA CELLS

Sci. JPRS 55100

4 Feb 72

UDC 576.852.28 (Hydrogenomonas) 629.78

Article by V. M. Abramova, V. M. Danilovskiy and Yu. P. Druzhinin, Moscow, Kosmicheskaya Biologiya i Meditsina, Moscow, Vol. 5, No. 6, 1971, submitted for publication 25 June 1971, pp. 18-21.

**Abstract:** Investigations were carried out to determine the effect of flight conditions and prolonged ground storage on the viability and radiosensitivity of *Hydrogenomonas urophae*, strain 2-1, exposed as an aqueous suspension. Radiosensitivity was measured during pre- and postflight exposures to Cobalt gamma radiation. The absolute number of cells with inactivated division declined slightly and their radiosensitivity decreased as a result of extended (up to 24 days) storage at the temperature of melting ice and at room temperature, including during orbital flight. There was no distinct differences in the radiosensitivity of the *Hydrogenomonas* bacteria used in the experiment and in the control.

An electrolyte-bacterial apparatus with hydrogen bacteria can be used in a spacecraft life support system (G. I. Veronin and A. I. Polivoda; L. A. Ivanova and V. K. Korotchenko). The reliability of its operation during a long flight, together with many other factors, will be determined by maintenance of the reproductive activity of cells when they are cultivated in a hemostat or stored in a dormant state in the form of reserves of soluble material. In both cases the viability of hydrogen bacteria can vary, especially under the influence of cosmic radiation.

The degree of the survival danger from irradiation of any organism during flight can be determined on the basis of data on its radiosensitivity under standard irradiation conditions and its changes under the influence of a wide range of modifying factors characteristic of spaceflight (V. M. Danilovskiy, et al.; Yu. G. Grigor'ev, et al.). We did not find this type of information in the literature concerning hydrogen bacteria. The purpose of

DRUZHININ, Yu. P.

RESULTS OF RESEARCH ABOARD THE KOSMOS-368 ARTIFICIAL EARTH SATELLITE

SO: JPRS 55100  
4 FEB 1972

CONDITIONS AND PRINCIPAL RESULTS OF RADIOBIOLOGICAL RESEARCH  
UDC 612.014.47/.482.5:629.783

Article by Yu. G. Gerasimov, L. N. Gerasimovskiy and Yu. P. Druzhinin, Moscow, Kosmicheskaya Biologiya i Meditsina, Russian, Vol 5, No 6, 1971, submitted for publication 25 March 1971, pp 3-7.

Abstract: This paper gives an outline of radiobiological investigations, including pre- and postflight irradiation of biological specimens. It describes experiments performed with dormant yeast cells, hydrogen bacteria, lettuce and pea seeds aboard the Kosmos-368 artificial earth satellite. An analysis of certain radiation effects (cell division inactivation, chromosomal aberration induction, growth stimulation and inhibition, etc.) reveals no substantial modification of radiation damage in response to nonradiation flight factors.

One of the principal objectives in radiobiological research on artificial earth satellites is a study of the modifying effect of weightlessness and other nonradiation flight factors on the biological effects of cosmic radiation. On the basis of data from general radiobiology and materials from radiobiological experiments one can postulate the presence of such an influence, but for the time being it is impossible to speak with assurance concerning the direction and mechanisms of change in radiosensitivity during space flight. The volume of accumulated knowledge concerning the combined effect of all spaceflight factors is still very limited and does not make it possible to visualize the effects of radiation and nonradiation factors appearing at different levels in biological organization (P. P. Sazonov, et al.).

Events which transpire at the molecular and cellular levels are of the greatest importance. Their effects can lead to impairments in the most



USSR

UDC 547.785.5'741

KOCHERGIN, P. M., SHEYNKER, YU. N., ~~DRUZHININA, A. A.~~, PALEY, P. M. and  
ALEKSEYEVA, L. M., All Union Scientific Chemical-Pharmaceutical Institute  
Imeni S. ORDZHONIKIDZE, Moscow

"Studies in the Imidazole Series. LVIII. Debenzylation of N-Benzyl-substituted  
1H-Pyrrolo [1,2-a]imidazole and 4H-Pyrrolo [1,2-a]benzimidazole"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 6, Jun 71, pp 826-830

Abstract: Debenzylation of N-benzylsubstituted 1H-pyrrolo-[1,2-a] imidazole  
and 4H-pyrrolo [1,2-a]benzimidazole by the action of sodium in liquid ammonia  
was studied. Using IR and NMR spectral analysis it was shown that the products  
are derivatives of 7H-pyrrolo-[1,2-a]imidazole and 3H-pyrrolo[1,2-a]benzimidazole.  
Debenzylation of 2,3-diphenyl-4-benzylpyrrolo[1,2-a]benzimidazole takes place  
with concurrent reduction of the pyrrole ring forming 1H-2,3-dihydro-2,3-  
diphenylpyrrolo[1,2-a]benzimidazole, m.p. 193-194°.

1/1

Pharmacology and Toxicology

UDC 615.332 (Oleandomycinium).072

USSR

TEBYAKINA, A. E., DRUZHININA, E. N., SUVORKINA, D. V., National Institute for Antibiotics, Moscow

"Effect of the Presence of Oleandomycin in Triacetyloleandomycin on Determination of Biological Activity of Triacetyloleandomycin"

Moscow, Antibiotiki, Vol 15, No 1, Jan 70, pp 81-84

Abstract: (Authors' English-language summary modified) The presence of oleandomycin in triacetyloleandomycin (TAO) preparations had a marked effect on the biological activity of TAO as was determined by the agar-diffusion method using *Bac. mycoides* NV (resistant to tetracycline) as the test organism. An increase in effectiveness was also observed in dry mixtures of TAO with tetracycline during storage; this is attributed to the formation of oleandomycin in the dry mixture, oleandomycin being more diffusible in agar.

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USSR

UDC 669.292.018.8.669.295

ANDREYEVA, V. V., STEPANOVA, T. P., DRUZHININA, I., VLADIMIRSKAYA, T. M.

"Influence of Titanium on Corrosion Resistance and Physical-Mechanical Properties of Vanadium"

Nauchn. Tr. N-i. i Projektn. In-t. Redkomet. Prom-sti [Scientific Works of Scientific Research and Planning Institute for the Rare Metals Industry], 1971, Vol. 32, pp. 175-181. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 I706 by the authors).

Translation: Results are presented from studies of the physical and mechanical properties, structure, corrosion resistance, and electrochemical behavior of alloys in the system V-Ti with 10-90% Ti content. 4 figs; 3 tables; 4 biblio refs.

1/1

USSR

UDC 620.793.27

MIGAY, L. L., MAL'CHEVSKIY, Ye. G., ARONS, V. I., ~~DRUZHINTSA, I. P.~~, and  
VOROB'YEVA, L. P., State Scientific Research and Planning Institute of Rare  
Metals Industry

"Corrosion Resistance of Vanadium and Its Titanium Alloys in a 3% NaCl  
Solution"

Moscow, Zashchita Metallov, Vol 7, No 6, Nov-Dec 71, pp 699-700

Abstract: The corrosion resistance and mechanical properties of Va alloyed  
with 5-20% Ti were investigated. Ingots weighing 10-12 kg, smelted in an elec-  
tric furnace, were forged and rolled to 2 mm- and 0.3-mm-thick sheets.  
An increased Ti-content increased the corrosion resistance in a  
naturally aerated solution. The corrosion rate of the alloy with  
5 % Ti is considerably lower than 0.001 mm/year, which is the  
standard limit of ideal corrosion resistance of metals. Electro-  
chemical investigations carried out in a naturally aerated 3 %  
HCl-solution revealed that Va and its alloys with Ti are not pas-  
sivated at potentials of 0.05 - 0.7 v relative to a normal hydro-  
gen electrode, but with increasing Ti-content a decrease of the  
anodic current takes place. According to measurements of statio-  
nary electrode potentials, a refining of potentials of Va and  
its alloys takes place in time. One illustr., one table.

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USSR

UDC 669.292.5.017.12.620.193.41

VOROB'YEVA, L. P., DRUZHININA, I. P., GULYAYEV, A. P.

"Corrosion Resistance of 2-and 3-Component Vanadium Alloys in Boiling Solutions of Inorganic Acids"

Nauchn. Tr. N-i. i Proyechn. In-t Redkomet. Prom-sti [Scientific Works of Scientific Research and Planning Institute for the Rare Metals Industry], 1971, Vol.32, pp. 168-174. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 I705 by the authors).

Translation: The rate of corrosion of V and V alloys with Ti, Ta, Mo, and W in boiling solutions of hydrochloric, sulfuric, phosphoric, and nitric acids at various concentrations is determined. 5 figs; 1 table, 7 biblio refs.

1/1

Lasers

USSR

UDC: 621.373:530.145.6

DOLGINOV, L. M., DRUZHININA, L. V., YELISEYEV, P. G., KHRASAVIN, I. V.,  
LIBOV, L. D.

"Continuous Emission in Semiconductor Lasers at Room Temperature"

Kratkiye soobshch. po fiz. (Brief Reports on Physics), 1971, No 2, pp 57-63  
(from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6D158)

Translation: The authors describe injection lasers based on symmetric heterostructures with strip geometry operating in the continuous mode at a temperature of 300°K. The heterostructures are produced by the method of liquid epitaxy from solutions in gallium. A layer of N-type  $\text{Al}_x\text{Ga}_{1-x}\text{As}$  2-5  $\mu$  thick doped with tin (N emitter) was grown on a substrate of N-type GaAs oriented in plane (100), followed by a layer of N-type GaAs (undoped) or P-type germanium-doped GaAs (active layer) 0.4-1.2  $\mu$  thick, a layer of P-type germanium-doped  $\text{Al}_x\text{Ga}_{1-x}\text{As}$  1.7-2.5  $\mu$  thick (P-emitter), and finally a fourth layer of P-type GaAs (with germanium) to make a low-resistance contact no more than 2  $\mu$  thick. A silicon dioxide film was deposited on the P-side of the heterostructure, and bands 15  $\mu$  thick were photographically etched in this film in direction [110]. The value of x was typically

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DOLGINOV, L. M. et al., Kratkiye soobshch. po fiz., 1971, No 2, pp 57-63

0.2-0.4. Measurements showed that the main pumping power is released in a band 18-20  $\mu$  wide. It is shown that the necessary conditions for obtaining continuous emission are low threshold current density, which is realizable so far only in symmetric heterostructures, a thin diode base, and low series resistance of the diode (per unit area of the active region).  
A. K.

2/2

- 110 -

USSR

UDC: 620.193.2'198

KVOKOVA, I. M., DRUZHININA, T. A., LAPINA, L. N., POVALISHNIKOVA, T. Ye.,  
Moscow Institute of Steel and Alloys

"Investigation of a Multilayered Galvanic Coating Based on Nickel for Corrosion Protection Under Open-Sea Conditions"

Moscow, Zashchita Metallov, Vol 9, No 3, May/Jun 73, pp 264-269

Abstract: The paper deals with problems of the corrosion behavior of a multilayered nickel-based galvanic coating under the atmospheric conditions of the tropic seas. A layer of dull nickel 15-30  $\mu\text{m}$  thick is applied to a base of Armco iron, copper and Kovar. As a preliminary step, all substrates were cathodically degreased in an alkaline solution for 5 minutes and then chemically etched: the Armco iron in hydrochloric acid; the copper in a mixture of orthophosphoric, sulfuric and hydrochloric acids; the Kovar in a mixture of nitric, acetic and hydrochloric acids. The composition of the tinning electrolyte (g/l):  $\text{Na}_2\text{SnO}_3 \cdot 3\text{H}_2\text{O}$  80,  $\text{NaOH}$  13-18,  $\text{CH}_3\text{COONa}$  25. The bright nickel electrolyte (g/l):  $\text{NiSO}_4 \cdot 7\text{H}_2\text{O}$  250;  $\text{NaCl}$  15;  $\text{H}_3\text{BO}_3$  30; 1,4-butyldiol 0.7; sodium allylsulfonate 0.5; chloramine B 1. On the basis of testing of multilayer coatings on all three substrates it

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USSR

KVOKOVA, I. M. et al., Zashchita Metallov, Vol 9, No 3, May/Jun 73, pp 264-269

is concluded that a coating of Ni<sub>dull</sub> (15 μm) - Sn (15 μm) - Ni<sub>br</sub> (10 μm) can be recommended for protecting important components from corrosion under tropical sea conditions with steady-state operating schedules without intense cooling to temperatures where tin undergoes an allotropic change and the coating loses its protective properties.

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USSR

UDC 613.63:632.95:613.155.3

RYAZANOVA, R. A., DRUZHININA, V. A., NEVSTRUYEVA, V. V., Candidates of Medical Sciences, Moscow Scientific Research Institute of Hygiene Iena Erisnan

"Experimental Data Providing a Basis for the Maximum Permissible Concentration of Zineb in the Air in Work Areas"

Moscow, Gigyena i Sanitariya, No 8, 1972, pp 42-45

Abstract: A study was made of the biological effect of zineb following entry of it into the body through the respiratory system and unprotected skin. Both single and chronic exposures were considered. The studies were performed on 100 mice, 200 rats, 20 rabbits and 4 guinea pigs. In a chronic experiment zineb in the concentrations of 200 and 20 mg/m<sup>3</sup> caused a change in functional state of the organism of the experimental animal: a reduction in body weight, a reduction in number of leukocytes, content of total and protein SH-groups, a tendency toward a reduction in cholinesterase activity and an increase in the summation of the threshold index by comparison with the initial (background) and data from the control group of animals. An inverse relation was detected between the accumulation of radioactive phosphorus (P<sub>32</sub>) in the tissues and the zineb concentration. In a study of the estral cycle of female rats, zineb in a concentration of 20 mg/m<sup>3</sup> caused prolonging of the diestrus phase

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USSR

RYAZANOVA, R. A., et al., Gigiyena i Sanitariya, No 8, 1972, pp 42-45

and atypical alternation of stages. Mating of the females with experimental males took place against a background of intoxication which did not exclude manifestation of both embryotropic and gonadotropic effects. Sterility of males and resorption of fetuses by the females resulted from zineb exposure. There were marked effects on embryo and postnatal weight of baby rats when the mother had been subjected to 20 mg/m<sup>3</sup> of zineb during pregnancy.

Thus, zineb concentrations of 200 and 20 mg/m<sup>3</sup> are considered toxic, and a concentration of 5 mg/m<sup>3</sup> is considered threshold. In view of the effect of the compound on gonads and embryogenesis, a maximum permissible concentration of 0.5 mg/m<sup>3</sup> of zineb in the air of work areas is recommended.

2/2

Organometallic Compounds

USSR

UDC 547.256.81+547.256.83

SHCHERRAKOV, V. I., ZHIL'ESOV, S. F., and DRUZHNIKOV, O. N.

"Thermal Decomposition of Organometallics of Thallium and Indium with Metal-Oxygen and Metal-Nitrogen Bonds"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 7, Jul 70, pp 1542-1545

Abstract: The article describes results of a study of the thermal decomposition (150-230°) of alkoxy compounds of thallium and indium exemplified by  $(C_2H_5)_2MOC(CH_3)_3$  and amino substituted derivatives of the type  $(C_2H_5)_2$

$MN(C_2H_5)_2$ . It was found that these alkoxy and amino derivatives of indium disproportionate to triethylindium and ethylindium di-tert-butylate and bis(diethylamino)ethylindium respectively. The stability of diethylindium tert-butylate was significantly higher than that of the corresponding thallium compound. Diethylthallium tert-butylate decomposed with cleavage of the Tl-C bonds and retention of the Tl-O bond. Thallous tert-butylate was formed quantitatively in the process. Diethylaminodiethylthallium decomposed with cleavage of both the Tl-C and Tl-N bonds.

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USSR

UDC 547.822.7.341.26'118.07

DRUZIN, M. I., TODRES, I. M., and ZHURAVLEVA, M. A.

"A Method of Making 0,0-Dialkyl(alkaryl) N-[2-(Alkylpyridyl-2')alkylene]alkylaminomethylene Phosphonates"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, 1970, No 33, Soviet Patent No 284990, class 12, filed 21 Jul 69, published 29 Oct 70, p 25

Translation: This Author's Certificate introduces: 1. A method of making 0,0-dialkyl(alkaryl) N-[2-(alkylpyridyl-2')alkylene]alkylaminomethylene phosphonates. As a distinguishing feature of the patent, dialkyl(alkaryl) phosphites are allowed to react with formaldehyde and N-[2-(alkylpyridyl-2')alkylene]alkylamine with subsequent isolation of the production by conventional methods. 2. A modification of this method is distinguished by the fact that the process is carried out at a temperature below 100°C.

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Navigation Aids

USSR

UDC: 621.397

DRUZIN, Ya. V., KOGANER, S. E.

"Displaying Navigational Data on a Television Screen"

V sb. Materialy Nauch.-tekhn. konf. Leningr. elektrotekhn. in-t  
svyazi. Vyp. 3 (Materials of the Scientific and Technical Con-  
ference of Leningrad Electrical Engineering Institute of Com-  
munications--collection of works, No 3), Leningrad, 1971, pp  
65-70 (from RZh-Radiotekhnika, No 3, Mar 72, Abstract No 3G267)

Translation: The authors consider the principles of measuring  
the coordinates of a remote object in accordance with data ex-  
tracted from its TV image. Resumé.

1/1

Acc. Nr:

**AP0043714**

Abstracting Service: 5/70  
INTERNAT. AEROSPACE ABST.

Ref. Code:

**4R 0141**

**DRYAGIN Yu.A.**

A70-23141 # A method of measuring frequency by a  
high-quality Fabry-Pérot resonator (Metod izmereniia chastoty s  
vysokodobrotnym rezonatorom Fabri-Pero). Iu. A. Dryagin  
(Gor'kovskii Gosudarstvennyi Universitet, Gorki, USSR).  
Izv VUZ Radiofizika, vol. 13, no. 1, 1970, p. 141-145. 6 refs. In Russian.

A method of measuring frequency in millimeter and  
submillimeter ranges using a high-quality (Q of about 1,000,000)  
Fabry-Pérot resonator is proposed. The accuracy of the frequency  
measurement is about of .00001.  
(Author)

ALS

REEL/FRAME  
**19770120**

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USSR

UDC 621.317.361.029:621.3.029.65/66

DRYAGIN, Y. A.

"Method of Frequency Measurement with High-Q Fabry-Pérot Resonator"

Gor'kiy, Izvestiya VUZov SSSR Radiofizika, Vol 13, No 1, 1970,  
pp 141-145

Abstract: A method is described for determining the frequency in the millimeter and submillimeter wavelength range. This method is aid to be much simpler than the heterodyne method usually employed for this purpose, and is only slightly less accurate. The new method is based on the use of a high-Q Fabry-Pérot resonator. Its essence is that the precision measurements of length formerly required are replaced by frequency measurements in a well-mastered range. The required element of the new appratus is an auxiliary oscillator permitting frequency modulation close to the frequency to be determined. A block diagram of the equipment, containing a standard resonator, the measurement resonator, an oscillograph,  
1/2



USSR

DRYAGIN, Y. A., Izvestiya VUZov SSSR Radiofizika, Vol 31, No 1, 1970, pp 141-145

a frequency meter, a modulator, and a scanning oscillator, is given. The system is quasi-optical, using a reflector and lenses; the auxiliary microwave oscillator is a backward wave tube of the LOV-1.5 type. It is asserted that as a result of its simplicity, the method rivals that of heterodyning the frequency to be determined against a high harmonic of a quartz crystal, the method used by Rusk in his measurements, and is only an order of accuracy lower. The difference between the author's and Rusk's results amounts to about two MHz, for reasons which are as yet unclear. The author thanks V. V. Parshin and I. L. Bershteyn for their assistance.

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USSR

UDC 621.371:538.569.4:551.57

DRYAGIN, Yu. A., LUBYAKO, L. V., and KUKIN, L. M.

"Signal Attenuation by Fog and Snowfalls ( $\lambda = 1.3$  mm)"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl.  
(Tenth All-Union Conference on the Propagation of Radio Waves;  
Report Theses--collection of works) "Nauka," 1972, pp 86-88 (from  
RZh--Radiotekhnika, No 10, 1972, Abstract No 10A316)

Translation: The technique of measuring the attenuation using  
transceiver equipment with two paraboloid of revolution antennas  
located 1.6 km. from the transmitting-receiving point of a corner  
reflector is described. Bibliography of four. N. S.

1/1

Acc. Nr: **0038055**

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy  
Fiziki, 1970, Vol 58, Nr 1, pp **348-353**

INSTABILITY OF SPATIALLY SEPARATED PLASMA BEAMS

Yu. A. Romanov, V. F. Dryakhlushin

The interaction and instability of two spatially separated homogeneous semi-infinite plasma beams are investigated in the kinetic and quasihydrodynamic approximations. The interface between the beams is assumed to be sharp and their temperatures identical. The boundaries of beam instability and the wave increments and also the nature of behavior of the excited wave field are determined. The dependence of the minimal drift velocity, at which oscillations arise, on the collision frequency in the plasma is investigated. It is shown that the wave increments may be quite large and comparable with the corresponding quantities for mutually penetrating beams.

REEL/FRA  
19731099

1/2 016 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--MERIDIONAL MOTION OF AURORAL ABSORPTION BAYS -U-

AUTHOR--(02)-DRYATSKIY, V.N., SHUMILOV, O.I.

COUNTRY OF INFO--USSR

SOURCE--GEOMAGNETIZM I AERONOMIJA, VOL. 10, NO. 2, 1970, P. 305-311

DATE PUBLISHED-----70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, ATMOSPHERIC SCIENCES

TOPIC TAGS--AURORA, GEOMAGNETIC LATITUDE, RADIO MOISE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0154

STEP NO--UR/0203/70/010/002/0305/0311

CIRC ACCESSION NO--AP0119150

UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0119150

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. OBSERVATIONAL DEMONSTRATION OF A SYSTEMATIC LAG IN THE ONSET OF AURORAL ABSORPTION AT STATIONS LOCATED TO THE NORTH AND SOUTH OF A CERTAIN MEAN GEOMAGNETIC LATITUDE (65 TO 66 DEG), USING GALACTIC RADIO NOISE RECORDINGS. THE SPEED OF MOTION TO THE NORTH DECREASED GRADUALLY WITH DISTANCE FROM THE INITIAL INTRUSION REGION. FACILITY: ARKTICHESKII I ANTARKTICHESKII NAUCHNO ISSLEDOVATEL'SKII INSTITUT, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC 621.382.2

BABENKO, S.P., VELICHKO, B.V., DRYDO, I.M., MIKHAYLOVA, E.A., STRUKOV, I.A., ETKIN, V.S.

"Experimental Investigation Of The Frequency Dependence Of The Impedance Of A P-N Junction In A Wide Range Of Frequencies"

V sb. Poluprovodn. pribory i ikh primeneniye (Semiconductor Devices And Their Application--Collection Of Works), No 23, Moscow, "Sov.radio," 1970, pp 297-304 (from RZh--Elektronika i yeye primeneniye, No 12, December 1970, Abstract No 12B97)

Translation: An investigation is conducted of the frequency dependence of the impedance of a p-n junction in the 10--3600 MHz frequency range. The behavior is observed of such parameters of the p-n junction as total capacitance, conductance, and the Q-factor of the excess capacitance. A comparison is given of the experimental dependences with the frequency dependence of the computed diffusion conductivity of a p-n junction with a retarding field in the base. Conclusions are made with reference to the nature of the impedance of a p-n junction. 3 ill. 1 tab. 3 ref. Author's Abstract.

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USSR

UDC: 8.74

DRYGA, D. A., PATSYUK, P. P.

"Evaluating the Spectral Density of a Random Process From the Correlation Function"

Tr. Zap.-Sib. n.-i. geologorazved. nef. in-t (Works of the West Siberian Scientific Research Institute of Geological Petroleum Prospecting), 1972, vyp. 55, pp 207-208 (from RZh-Kibernetika, No 10, Oct 72, abstract No 10V652)

Translation: A standard program in Minsk-22 codes. The program is used for calculating the spectral densities of a process from available values of the correlation function.

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USSR

UDC: 8.74

DRYGA, D. A.

"Separation of Interfering Signals Against a Noisy Background by the Method of Successive Subtractions With Refinement"

Tr. Zap.-Sib. n.-i. geologorazved. neft. in-t (Works of the West Siberian Scientific Research Institute of Geological Petroleum Prospecting), 1972, vyp. 55, pp 193-198 (from RZh-Kibernetika, No 10, Oct 72, abstract No 10V649 [author's abstract])

Translation: A standard program isolates and evaluates the amplitudes and time displacements of isolated signals, and then finds more accurate values of the parameters  $A$  and  $\tau$  of each signal, taking account of the estimates found for the same parameters for all other signals. The program is compiled in Minsk-22 computer codes.

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USSR

UDC: 8.74

DRYGA, D. A.

"Obtaining a Synthetic Trace"

Tr. Zap.-Sib. n.-i. geologorazved. nef. in-t (Works of the West Siberian Scientific Research Institute of Geological Petroleum Prospecting), 1972, vyp. 55, pp 209-211 (from RZh-Kibernetika, No 10, Oct 72, abstract No 10V653 [author's abstract])

Translation: A standard program in Minsk-22 codes. The program is used for modeling a trace on the basis of a representation of its additive nature.

1/1

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USSR

UDC: 8.74

DRYGA, D. A.

"Calculation of Integrals of the Form  $I(\omega) = \int_0^{t_k} f(t) \sin \omega t dt$  by the Method of Filon [Russ. Филон]"

Tr. Zap.-Sib. n.-i. geologorazved. nef. in-t (Works of the West Siberian Scientific Research Institute of Geological Petroleum Prospecting), 1972, vyp. 55, pp 199-202 (from RZh-Kibernetika, No 10, Oct 72, abstract No 10V650 [author's abstract])

Translation: A standard program in Minsk-22 codes. The program is designed for calculating the imaginary components of the spectrum of the process  $f(t)$ .

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USSR

UDC 619-616.988.43:576.809.7

FOMINA, M. S., DRYAGALIN, N. N., SHAZHKO, Zh. A., and ONUFRIYEV, V. P.,  
All Union Scientific Research Institute of Foot-and-Mouth Disease

"Antigenic Properties of Type C Foot-and-Mouth Disease Virus"

Moscow, Veterinariya, No 9, Sep 70, pp 40-42

Abstract: It was long held that type C foot-and-mouth disease virus, unlike types O and A, does not show variations in its antigenic properties. However, two strains of type C isolated in Great Britain exhibited considerable differences. Six strains of type C -- C-Polish, C-Czechoslovakian, C-TL-112 (received from Czechoslovakia), C-PL-42 (received from Poland), C-standard, and C-65 -- were studied in order to establish antigenic variations. On the basis of cross titration, complement-fixation and neutralization tests, the antigenic similarity of the strains (expressed in R%) was determined. The R values were calculated by a method described in the literature. Using the six strains, R was found to be 33-100% and 65-96% for the complement fixation and neutralization reactions, respectively. C-Polish, C-PL-42, and C-Czechoslovakian were identical (R = 91-100%). They differed considerably from C-65 (R = 55-70%) and C-standard (R = 33-48%). C-65 and C-standard differed from each other (R = 50%).

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USSR

UDC 518.5:681.3.06

DRYMALYK, Ya. P., SKURIKHIN, V. I.

"Automated Systems of Planning (ASPRO)"

1-YA Nauchno-tekhn. Konferentsiya Spets. Konstrukt. Byuro Mat. Mashin i Sistem [First Scientific and Technical Conference of the Special Design Bureau for Mathematical Machines and Systems -- Collection of Works], Kiev, 1970, pp 92-107 (Translated from Referativnyy Zhurnal Kibernetika, No. 4, April, 1971, Abstract No. 4 V 684 by I. Shelikhova).

Translation: The principles of design and most important characteristics of an automated planning system (ASPRO), the main system in a complete, automated control system (KASU) are discussed. The ASPRO is a combination of technical devices, mathematical methods, program apparatus and planning systems based on a single information basis. Its specifics include: specialized (peripheral) devices for input and output of data as drawings and graphs; intensive utilization of man-machine dialogue; continuous and active participation of man in the creation of products; sequential, step-by-step planning, iterative in nature; optimization of the last step. The process of planning with selection of a description of the diagram of the sequence of stages and operations occurring upon creation and introduction of a new technical device to production is analyzed. A block diagram

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USSR

UDC 518.5:681.3.06

DRYMALYK, Ya. P., SKURIKHIN, V. I., 1-YA Nauchno-tekhn. Konferentsiya Spets. Konstrukts. Byuro Mat. Mashin i Sistem, Kiev, 1970, pp 92-107.

of the APROS devices and diagrams describing its software (external languages, translators, information subsystems) are presented.

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USSR

UDC 621.396.62:621.396.97

BELOV, I. F., DRYZGO, YE. V.

Spravochnik po tranzistornym radiopriyemnikam (Transistorized Radio Receiver Reference Manual), Moscow, Soviet Radio Press, 1970, 519 pp (from RZh-Radio-tekhnika, No 9, Sep 70, Abstract No 9D2K)

Translation: This manual contains the characteristics and descriptions of radio broadcast receivers manufactured by domestic industry in 1959-1968. The information required for repair and adjustment of the receivers is presented: the theoretical and installation schematics, the flow charts for the operating modes of the transistors, the winding data, unsoldering of the leads of the circuit and transformer coils, and data on parts and assemblies. The tuning procedure using measuring and control devices and without them is described. The characteristic failures in the receivers are investigated, and means of eliminating them are studied. There are 297 illustrations and 67 tables.

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USSR

UDC: 532.526

DRYZHOV, A. S., Novosibirsk

"On the Stability of a Compressible Boundary Layer Relative to a Localized Disturbance"

Novosibirsk, Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 3, May/Jun 73, pp 107-114

Abstract: The author examines the problem of stability of a compressible boundary layer on a flat plate relative to a localized disturbance. The plate is located in the  $xz$ -plane parallel to the oncoming flow whose velocity vector is directed along the  $x$ -axis. Gasdynamic equations are linearized relative to a small deflection  $q$  from stationary distribution  $Q_s$

$$Q(t) = Q_s + q(t).$$

The Cauchy problem is solved for a system of equations which is linear relative to  $q$ , and a study is made of the asymptotic behavior of the solution as  $t \rightarrow \infty$ . The analysis is made with the following assumptions. The Prandtl number and specific heat ratio are considered constant, and the

1/2

USSR

DRYZHOV, A. S., Zhurnal Prikladnoy i Tekhnicheskoy Fiziki, No 3, May/Jun 73, pp 107-114

equation of state of an ideal gas is used. The dependence of the steady distribution of velocity, temperature and density on  $x$  is disregarded, and flow in the undisturbed boundary layer is taken as plane-parallel. It is shown that stability analysis reduces to a study of the discrete spectrum of eigenvalues of the corresponding boundary value problem. Numerical integration is used to analyze the nature of the resultant instability for one unstable mode for a Mach number  $M=4.5$ . The author thanks V. V. Struminskiy for interest in the work, L. B. Ayzin for useful discussion of the problems raised, and A. A. Maslov for considerable assistance with the numerical calculations.

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USSR

UDC 616.45-001.1/.3-07:[616.433-008.6-02:615.361.814.1]-07

DRZHEVETSKAYA, I. A., and BORODIN, A. D., Department of Pathological Physiology (Professor N. N. Trankvilitati, Head) Donetsk Medical Institute

"Corticotropin-Releasing Activity of Hypothalamic Extracts in Rats During Stress"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 3, 1971, pp 42-45

Abstract: To study the content of the corticotropin-releasing factor under various kinds and durations of stress, extracts from the hypothalami of rats were prepared whose corticotropin-releasing activity was determined by the decrease of ascorbic acid content in the animals' adrenal glands. In the first series of tests the animals were subjected to acute stress: inhalation of ether vapor for 2-1/2 minutes followed by immediate decapitation; unilateral adrenalectomy, the animals being sacrificed 24 hours after surgery; intramuscular histamine (300 mg) injection, with decapitation after 1 hour, at onset of shock symptoms; intramuscular insulin (4 units per 100 grams of weight), with marked hypoglycemia with 1-1/2 hours, followed by decapitation. In the second series multiple 1/2

USSR

DRZHEVETSKAYA, I. A., and BORODIN, A. D., Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 3, 1971, pp 42-45

administration of insulin (20-25 days) was given and the animals' state 5-14 days after unilateral adrenalectomy studied. To determine the corticotropin-releasing activity, an acetate extract of hypothalamus tissue taken immediately after decapitation was injected into recipient rats whose own hypothalamohypophyseal-adrenal system had been blocked with a nembutal-aminazine-morphine compound. It was revealed that in acute stress such activity increases, apparently due to predominant processes of CRF synthesis, while under prolonged stress it decreases.

2/2

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USSR

UDC: 681.325.65:621.382

CHICHERIN, Yu. Ye., OVCHINNIKOV, V. V., ~~DSHKHURIAN, V. I.~~, VDOVICHENKO, A. P.

"A Threshold Logic Element"

USSR Author's Certificate No 318163, filed 30 Jul 70, published 27 Jan 72  
(from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 7,  
Jul 72, Abstract No 7A58 P)

Translation: The Author's certificate presents a logic element of the threshold type which contains a linear adder based on resistors and controlled by input diodes and which is connected, through biasing diodes with interconnected cathodes, to a discriminator. To improve the degree of integration and increase resistance to climatic effects as well as to simplify the device, the discriminator is based on a single two-emitter transistor with a collector resistor having one emitter connected to the linear adder and a bias resistor, while the second emitter is connected to a grounding line. The base of this transistor is connected to the grounding line through a biasing resistor. One illustration.

1/1

Microelectronics

USSR

UDC: 681.325.65

DSHKHUNYAN, V. I., OVCHINNIKOV, V. V., CHICHERIN, Yu. E.

"A Multiple-Threshold Logic Element"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 32, Nov 71, Author's Certificate No 319077, Division H, filed 30 Jul 70, published 28 Oct 71, p 177

Translation: This Author's Certificate introduces a multiple-threshold logic element which contains a linear adder based on resistors, controlled by input diodes, and connected through biasing diodes with interconnected cathodes to a series circuit comprised of summing resistors and a multi-threshold discriminator. As a distinguishing feature of the patent, the design provides for increased speed and utilization of components which can be readily made in integrated-circuit form. The multithreshold discriminator is made in the form of several parallel-connected single-threshold discriminators based on a transistor with grounded emitter. The base of the transistor is connected to the collector of another transistor whose emitter is connected to the corresponding summing resistor, while the collector is connected to the base of the corresponding transistor in the preceding discriminator.

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Acc. Nr:

**AP0036813**

Ref. Code: UR 0016

PRIMARY SOURCE: Zhurnal Mikrobiologii, Epidemiologii, i  
Immunobiologii, 1970, Nr 1, pp 39-43

CLINICAL AND EPIDEMIOLOGICAL INDICES OF THE EFFICACY  
OF TREATMENT OF ACUTE DYSENTERY BY DIFFERENTIAL  
METHOD

Dubovskiy, V. G.; Dubakina, L. N.

Differential (according to individual indications) antibiotic therapy of dysentery was carried out. It appeared that the duration of the course of treatment varied from 2 to 8 days ( $4.6 \pm 0.7$  on the average); variations in the periods of treatment were associated not with the severity of the course of the disease, but with individual physiological peculiarities of the human organism.

Repeated course of treatment proved to be necessary by clinical indications in 1.9% of the cases, and by epidemiological — in 11.2%. Acute carrier state was seen in 1.6% of the total number of patients. The number of chronic forms of dysentery fell from 23.5% in 1955—1956 (when the treatment was instituted for a prolonged period in two cycles) to 1.2—3.1% in 1961—1966 (when differential method was completely introduced). There were also noted biochemical and other changes pointing to a high therapeutic and epidemiological efficacy of the differential method.

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REEL/FRAHE  
19721700

1/2 020 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--ACYL FREE RADICALS. II -U-  
AUTHOR--DUSCHENKO, V.N.  
COUNTRY OF INFO--USSR  
SOURCE--Zh. Org. Khim. 1970, 6(5), 968-71.  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--THERMAL EFFECT, CHLORINATED ORGANIC COMPOUND, FREE RADICAL,  
CHEMICAL REACTION MECHANISM  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3006/1318 STEP NO--UR/0366/70/006/005/0068/0971  
CIRC ACCESSION NO--AP0134992  
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--APC134992

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PASSAGE OF CCL SUB4-RCU SUB2 R PRIME MIXT. THROUGH A BED OF ACTIVATED C AT 800DEGREES GAVE RC.O WHICH WAS IMMEDIATELY CONVERTED TO RCOCL (R EQUALS ME, PR, BU, ME(CH SUB2) SUB4, MC(CH SUB2) SUB7, OR PH) IN 46-98PERCENT YIELDS. THE 1ST STAGE OF THERMAL HOMOLYTIC CLEAVAGE GIVES RC.O AND R PRIME O. WHICH REACTS WITH C OXIDIZING IT AND GIVING R PRIME . WHICH REACTS WITH CCL SUB4 GIVING C.CL SUB3 AND R PRIME CL. FACILITY: KRIVOROZH. GORN. INST., KRIVOI ROG, USSR.

UNCLASSIFIED

Acc. Nr:

AP0046660

Abstracting Service:

Ref. Code:

INTERNAT. AEROSPACE ABST. 5-70 2183663

D

A70-25297 # Energy dissipation during vibrations of multilayer plates (Rasseianie energii pri kolebaniiaxh mnogosloinykh plastin). V. G. Dubenets (Kievskii Politekhnikheskii Institut, Chernigor, Ukrainian SSR). *Problemy Prochnosti*, vol. 2, Feb. 1970, p. 58-62. In Russian.

Outline of a method of calculating the vibrations of a multilayer plate with allowance for energy dissipation in the material. Pisarenko's (1969) generalized equations are taken as the physical law. The equations of motion and the functionals taking into account energy dissipation in each layer of the plate are derived.

A.B.K.

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REEL/FRA  
19781973

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Acc. Nr:

AP0045913

Abstracting Service: 5/70  
INTERNAT. AEROSPACE ABST.

Ref. Code:

UR 3663

D

A70-22468 # Vibrations of a three-layer plate with an allowance for energy dissipation in a material--One dimensional case (Kolebaniia trekhsloinoi plastiny s uchetom rasseianiia energii v materiale--Odnomernyi sluchai). V. G. Dubenets (Kievskii Politekhniceskii Institut, Chernigov, Ukrainian SSR). *Problemy Prochnosti*, vol. 2, Jan. 1970, p. 83-85. In Russian.

Calculation of free and forced vibrations with an allowance for the energy dissipation in a material, using the Pisarenko (1969) equations. As an example, the vibrations of a three-layer, freely suspended plate are examined. Formulas are derived for constructing the envelope of the free vibrations and the resonance curve. Z.W.

ALS

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REEL/FRAME  
19780958

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USSR

UDC (621.165+621.438)-531.9.001.5

DUBCHAK, V. S.

"Variable Operating Conditions of 1,500-20,000 Megawatt Steam-Gas Power Units with Gas Discharge to the Steam Boiler"

Energ. i elektrifikatsiya. Nauchno-proizv. sb. (Power and Electrification. Scientific Production Collection). 1970, No 5 (53), pp 42-44 (from RZh-Turbostroyeniye, No 1, Jan 71, Abstract No 1.49.28)

Translation: This article contains a study of the operating characteristics and efficiency of 1,500 megawatt steam-gas power units with gas discharge to the steam boiler when operating the supercharged turbine units with constant rpm ( $n = \text{const}$ ) and a variable excess air coefficient in the steam boiler ( $\alpha_{nk} = \text{Var}$ ) and when operating the supercharged turbine units with variable rpm ( $n = \text{Var}$ ) and constant excess air coefficient in the steam boiler ( $\alpha_{nk} = \text{const}$ ). Regulation by the  $n = \text{const}$  and  $\alpha = \text{Var}$  program has higher efficiency under partial loads and excludes the possibility of unstable operating conditions and surging of the gas-turbine unit. There are 2 illustrations.

1/1

- 23 -

1/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--AUTOMATIC WELDING OF TEE JOINTS BY A POWDER WIRE -U-  
AUTHOR--(05)-DIKUN, V.N., CHERNOV, YU.A., PELEVICH, YU.P., DUBEN, L.V.,  
SULGVYEV, G.N.  
COUNTRY OF INFO--USSR  
SOURCE--MOSCOW, SVAROCNOYE PROIZVODSTVO, NO 3, 1970, P 19  
DATE PUBLISHED--70  
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR  
TOPIC TAGS--AUTOMATIC WELDING, WELD JOINT, WIRE, WELDING  
ELECTRODE/(U)EPS152 POWDER WIRE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1999/1298 STEP NO--UR/0135/70/000/003/0019/0019  
CIRC ACCESSION NO--AP0123257  
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123257

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TECHNOLOGY HAS BEEN DEVELOPED OF A SINGLE PASS AUTOMATIC WELDING OF TEE JOINTS USING A POWDER WIRE, IN WHICH JOINTS WITH A LEG UP TO 8 MM ARE WELDED IN A SINGLE PASS. WITH INCREASE OF THE LEG THE WELDING IS PERFORMED IN SEVERAL PASSES WITH SCRUBBING SLAG FROM JOINTS. THE WORKING CONDITIONS OF THE AUTOMATIC SINGLE PASS WELDING BY THE EPS-15,2 POWDER WIRE OF TEE JOINTS WERE DETERMINED.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--HALOCHROMISM OF 1,5-DIARYL,3,SUBSTITUTED FORMAZANS -U.  
AUTHOR--(02)-DUBENKO, R.G., PELKIS, P.S. **D**  
COUNTRY OF INFO--USSR  
SOURCE--ZH. ORG. KHIM. 1970, 6(5), 1101-4  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--UV SPECTRUM, BENZENE DERIVATIVE, ORGANIC AZINE COMPOUND,  
AROMATIC NITRO COMPOUND  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3006/1351 STEP NO--UR/0366/70/006/005/1101/1104  
CIRC ACCESSION NO--AP0135025  
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0135025

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROTONATION OF P-RC SUB6 H SUB4 N:NCR PRIME1 :NNHC SUB6 H SUB4 R PRIME2 -P (I) IN H SUB2 SO SUB4 SOLNS. SHIFTS THEIR UV SPECTRA MAX. BY 125-250 NM INTO LONGER LAMBDA REGIONS AS COMPARED WITH THE SPECTRA OF I IN ALC. THE MAX. OF UV LIGHT ABSORPTION OF P-ETOC SUB6 H SUB4 N:NC(CN):NNHC SUB6 H SUB4 NO SUB2 -P IS EQUAL TO THE ARITHMETIC MEAN OF I (R EQUALS ETO, R PRIME1 EQUALS CN) AND I (R EQUALS NO SUB2, R PRIME1 EQUALS CN) ABSORPTIONS. THE SPECTRA OF I (R IS H, ME, ETO, OR NO SUB2 R PRIME1 IS NO SUB2 OR CN) ARE GIVEN.

FACILITY: INST. ORG. KHIM., KIEV. USSR.

UNCLASSIFIED

Acc. Nr.

AP0041688

Abstracting Service:  
CHEMICAL ABST.

4/70

Ref. Code

LR0366

D

89993h Arylsulfonylacetonitriles. I. Arylamides of aryl-sulfonylcyanothioacetic acid. Neplyuev, V. M.; Usenko, Yu. N.; Dubanko, R. G.; Pel'kis, P. S. (Inst. Org. Khim., Kiev, USSR) *Dokl. Akad. Nauk SSSR* 1970, 6(1), 164-6 (Russ.). The reaction of  $p\text{-RC}_6\text{H}_4\text{SO}_2\text{CH}(\text{CN})\text{Na}$  (I) with  $\text{R}^1\text{C}_6\text{H}_4\text{NCS}$  in alc.-ether soln. gave  $p\text{-RC}_6\text{H}_4\text{SO}_2\text{CH}(\text{CN})\text{CSNNaC}_6\text{H}_4\text{R}^1$  which were decompd. with  $\text{HCl}$  to give 35-84% (on I)  $p\text{-RC}_6\text{H}_4\text{SO}_2\text{CH}(\text{CN})\text{CSNHC}_6\text{H}_4\text{R}^1$  (II) (R and  $\text{R}^1$  given): H, H; H,  $p\text{-Me}$ ; H,  $p\text{-Cl}$ ; H,  $p\text{-I}$ ; H,  $p\text{-Br}$ ; Me, H; Me,  $p\text{-Cl}$ ; Me,  $p\text{-Br}$ ; Me,  $p\text{-I}$ ; Cl, H; Cl,  $p\text{-Br}$ ;  $\text{NO}_2$ ,  $p\text{-Br}$ . The uv and ir spectra of II confirmed their structure. CPJR

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REEL/FRAME

19751565

1/2 009 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--ARYLSULFONYLACETONITRILES. III. ARYLSULFONYLCYANTHIOACETIC ACID  
ARYLAMIDES IN THE JAPP-KLINGEMANN REACTION. HYDROLYTIC SPLITTING OFF OF  
AUTHOR--(04)--NEPLYUYEV, V.M., USENKO, YU.N., DUBENKO, R.G., PELKIS, P.S.

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(4), 801-5

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THIOL, ACETIC ACID, ORGANIC NITRILE COMPOUND, ANILINE,  
AROMATIC CARBOXYLIC ACID, AMIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--2000/2154

STEP NO--UR/0366/70/006/004/0801/0805

CIRC ACCESSION NO--AP0125737

UNCLASSIFIED



2/2 009

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125737

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTIONS OF P-XC SUB6 H SUB4 SO SUB2 CH(CN)CSNHR WITH P-X PRIME1 C SUB6 H SUB4 N SUB2 CL IN AN ALC.-WATER MIXT. CONTG. ACCNA GAVE P-XC SUB6 H SUB4 SO SUB2 C(CN):NNHC SUB6 H SUB4 X PRIME1-P AND RNHC(S)OH. SIMILARLY, PHNHCOCCH(CN)CO SUB2 ET REACTED WITH P-X PRIME1 C SUB6 H SUB4 N SUB2 CL TO GIVE P-X PRIME1 C SUB6 H SUB4 NHN:C(CN)CO SUB2 ET PLUS PHNHC SUB2 H. IN THE COURSE OF THE REACTION, PHNHC SUB2 H DECOMPD. TO PHNH SUB2 AND CO SUB2. ALSO, PHNHC(S)CH(CN)CO SUB2 ET REACTED WITH P-X PRIME1 C SUB6 H SUB4 N SUB2 CL TO GIVE P-X PRIME1 C SUB6 H SUB4 NHN:C(CN)CO SUB2 ET, PHNH SUB2, H SUB2 S, AND CO SUB2. THESE REACTIONS INVOLVE THE INTERMEDIATE P-XC SUB6 H SUB4 SO SUB2 C(CN)(Y)N:NC SUB6 H SUB4 X PRIME1-P COMPLEXES IN WHICH THE FACILITY FOR THE SPLITTING CFF Y DECREASES IN ORDER H GREATER THAN CSNHR GREATER THAN OR EQUAL TO CONH SUB2 GREATER THAN CONHR GREATER THAN CO SUB2 H GREATER THAN COR PRIME1 GREATER THAN CO SUB2 R PRIME1 GREATER THAN BR APPROXIMATELY EQUAL TO NO SUB2 GREATER THAN CN GREATER THAN SO SUB2 R GREATER THAN R APPROXIMATELY EQUAL TO R PRIME1 (R AND R PRIME1 ARE AROMATIC AND ALKYL GROUPS RESP.). FACILITY: INST. ORG. KHIM., KIEV, USSR.

UNCLASSIFIED

USSR

UDC 533.6.12

BUNIMOVICH, A. I., and DUBINSKIY, A. V., Moscow

"Variational Method for the Generalized Class of Functionals and its Application in Problems of Aeromechanics"

Moscow, Izvestiya Akademii Nauk USSR, Mekhanika Zhidkosti i Gaza, No 1, Jan-Feb 73, pp 103-111

Abstract: The variational problem for the generalized class of functionals of the type

$$I = f(I_1, I_2, \dots, I_n), \quad I_k = \int_{x_i}^{x_f} F(x, y, \dot{y}) dx \text{ is investigated.}$$

Particular attention is paid to the extreme of functionals representing a sum or a product of some orders of integrals from an unknown function. The necessary conditions of the extreme are derived and a method is given for solving the variational problem for the cases of fixed and free ends. Analytical solutions of the problem of the form of nonaxisymmetric bodies receiving the mi-  
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BUNIMOVICH, A. I., and DUEINSKIY, A. V., Izvestiya Akademii Nauk USSR, Mekhanika Zhidkosti i Gaza, No 1, Jan-Feb 73, pp 103-111

nimum heat flux and of the problem of the form of thin bodies of revolution receiving the minimum specific heat flux at supersonic streamlining by an ideal gas flow are presented as examples. Four figures, fifty seven formulas, fourteen bibliographic references.

2/2

1/2 030 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--FUSED OHMIC CONTACT FOR ZINC SELENIDE -U-  
AUTHOR-(03)-DUBENSKIY, K.K., RUMYANTSEVA, A.V., RYZHKIN, YU.S.  
COUNTRY OF INFO--USSR *D*  
SOURCE--PRIB. TEKH. EKSP. 1970, 1, 227-8  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--SINGLE CRYSTAL, GRAPHITE, ELECTRIC CONDUCTIVITY, ZINC SELENIDE  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1994/1711 STEP NO--UR/0120/70/001/000/0227/0228  
CIRC ACCESSION NO--AP0115540  
UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0115540

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD IS DESCRIBED FOR OBTAINING AN OHMIC CONTACT TO ZNSE BY ALLOYING IN INTO THE SINGLE CRYSTAL PLATELET OF ZNSE. THE ZNSE, AFTER POLISHING, IS ETCHED IN A FRESHLY PREPD. HOT SOLN. OF 6 PARTS K SUB2 CR SUB2 O SUB4 PLUS 4 PARTS H SUB2 SO SUB4 WITH SUBSEQUENT WASHING IN 25PERCENT NAOH. THE ALLOYING TIME (40-60 SEC) IS DETD. BY THE TIME NEEDED TO HEAT THE GRAPHITE COAT FROM 300 TO 540DEGREES AND TO COOL IT TO 300DEGREES. ALLOYING WAS DONE IN H. THE TOTAL RESISTANCE OF THE CONTACT IS APPROXIMATELY EQUAL TO 10 PRIME NEGATIVE2 OHM-CM PRIME2.

UNCLASSIFIED

DUBETS, T.G.

5 PLS 5/2/68  
6-12

111-9. EFFECT OF GROWTH CONDITIONS ON THE STRUCTURE AND MECHANICAL PROPERTIES OF SINGLE IODINE ANTIMONIDE CRYSTALS

Article by T. G. Dubets, L. G. Yelanskaya, V. S. Yelova, V. I. Selivanina, Moscow: Novotekhnika, 111 Stannidium no Iodidom Rossiya 1. Stannidium, Poluprovodnikovaya Kristallografia, Moscow, 12-13 June, 1972, p 33

A study was made of the effect of the growth techniques (zone melting and the Crochral'ski method) on the density of the dislocation etching holes. The effect of the constant on the dislocation distribution in the zonally purified iodine antimonide is demonstrated.

A study was made of the effect of the growth direction on the nature of the distribution of the etching figures in single iodine antimonide crystals obtained by the Crochral'ski method.

The etching conditions were selected for discovering the dislocations in the (211), (311), (100), (110) planes.

An estimate was made of the inclination of the iodine antimonide crystals toward brittle rupture or crack formation by the abrasive wear method.

USSR

Instruments and Measurements

UDC: 621.374.32

DUBIK, L. and TSISEK, Z.

"Decade Counter at 200 MHz"

Moscow, Pribory i Tekhnika Eksperimenta, No. 3, 1971, pp 95-98

Abstract: The need for the instrument described by this article arises in the use of scintillation and Cerenkov counters whose pulse shapers and coincidence circuits attain frequencies of as much as  $2 \cdot 10^6$  pulses per second. The instrument is designed to accommodate such high pulse rates, counting frequencies as high as 200 MHz. Using germanium tunnel diodes and transistors, it contains a binary cell, a pulse-shaping stage, a quinary cell, an output shaping circuit, and a decoder with a decade state indicator circuit. The quinary cell has an unusual feature: to reduce the base current of the saturated transistor and thus increase its speed of action, a tunnel diode is connected to the base through a voltage divider. By the use of such voltage dividers in the base circuits of the transistors, the limiting frequency of the quinary cell was raised from 47 to 110 MHz. Schematics of the decade and of its state indicator circuit are given with an explanation of their operation. Members of the United Institute of Nuclear Research at Dubna, the authors express their gratitude to V. G. Zinov, I. F. Kolpakov, and V. I. Rykalin for their comments.

1/1

USSR

UDC 542.92:547.414.8

DUBIKHIN, V. V., NAZIN, G. M., and MANELIS, G. B., Institute of Chemical Physics, Academy of Sciences USSR

"Thermal Decomposition of Chloropicrin"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, Jun 71, pp 1338-1339

Abstract: The article describes results of a detailed study of the effect of initial pressure and inhibitors on the decomposition of chloropicrin, and also determines the rate constant. It is shown that the decomposition of chloropicrin in the gas phase (50-400 torr) depends on the pressure and the addition of inhibitors (toluene, formaldehyde).

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- 13 -



USSR

UDC 620.193.3

KASHCHYEVA, T. P., DUBIKHINA, V. S., GADASINA, L. YU., MESHCHERYAKOVA, I. D., and RUTKOVSKIY, M. L.

"Effect of Oxidizers on Corrosion and Electrochemical Behavior of Nickel-Molybdenum Alloy EP-496 in Hydrochloric Acid"

Moscow, Zashchita Metallov, Vol 7, No 1, Jan-Feb 71, pp 11-15

Abstract: The article describes results of a study of the effect of oxygen and ferric chloride on the corrosion resistance of nickel-molybdenum alloy EP-496 (28 percent Mo, 70 percent Ni, 1.5 percent V, 4 percent Fe) in concentrated (22 percent) hydrochloric acid saturated with air or nitrogen at  $P = 1$  atm and a temperature of  $20^{\circ}$  and  $100^{\circ}$ , for purposes of determining conditions for the applicability of the alloy in the production of organo-silicon liquids. It was found that the corrosion rate in air-saturated hydrochloric acid is 7 times greater than in deaerated hydrochloric acid; in aerated hydrochloric acid in the gaseous phase the corrosion rate is 2 times greater than it is in the liquid phase. A similar difference was observed under production conditions, particularly in the production of organo-silicon liquid GKZh-94. It is shown that the corrosion rate of alloy EP-496 is determined primarily by the depolarizer concentration and the rate at which

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USSR

KASHCHEYEVA, T. P., et al., Zashchita Metallov, Vol 7, No 1, Jan-Feb 71, pp 11-15

it is supplied to the corroding surface. In using the alloy as a construction material particular attention must be given to the absence of oxidizers. Iron impurities cannot be tolerated in concentrated HCl at high temperatures.

2/2

1/2 029 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--SEROTONIN CONTENT IN THE BLOOD OF PATIENTS WITH INFLAMMATORY  
DISEASES OF THE RESPIRATORY ORGANS -U-  
AUTHOR--DUBILEY, P.V. D  
COUNTRY OF INFO--USSR  
SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 2, PP 36-38  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--SEROTONIN, BLOOD CHEMISTRY, RESPIRATORY SYSTEM DISEASE,  
PNEUMONIA, HYPOXIA, URINE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1985/1619 STEP NO--UR/0504/70/042/002/0036/0038  
CIRC ACCESSION NO--AP0101679  
UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0101679

ABSTRACT/EXTRACT--(U) GP-D- ABSTRACT. THE AUTHOR STUDIED THE SEROTONIN CONTENT IN THE BLOOD OF 40 HEALTHY INDIVIDUALS (DONORS) AND OF 60 PATIENTS WITH INFLAMMATORY DISEASES OF THE RESPIRATORY ORGANS (CHRONIC BRONCHITIS, BRONCHOECTATIC DISEASE AND CHRONIC PNEUMONIA) WITH PULMONARY INSUFFICIENCY OF THE II AND III DISEASE BY THE BIOLOGICAL METHOD AFTER DALGLISH WITH COAUTHORS. EXCRETION OF 5, DIAA WITH URINE WAS STUDIED IN PARALLEL. THE AUTHOR OBSERVED A DROP IN THE SEROTONIN LEVEL IN THE BLOOD OF PATIENTS WITH AN INFLAMMATORY PULMONARY PROCESS DOWN TO 0.05 MGM-ML (IN HEALTHY PERSONS IT WAS EQUAL TO 0.16 MGM-ML) AND THE DEPENDENCE OF THIS DROP UPON THE DEGREE HYPOXIA AND SUPPURATIVE INTOXICATION IN NORMAL 5, DIAA EXCRETION WITH URINE. DURING THE EXPERIMENT MADE ON 28 ANIMALS WITH ARTIFICIALLY CAUSED INFLAMMATORY BRONCHO PULMONARY PROCESS (ACUTE PNEUMONIA AND CHRONIC PNEUMONIA) A DROP IN THE SEROTONIN LEVEL IN THE BLOOD WAS ALSO FOUND IN ANIMALS FROM 2.5 TO 1.7 MKG DEPENDING UPON THE SEVERITY OF THE PROCESS AND THE DURATION OF THE DISEASE.

UNCLASSIFIED

Acc. Nr:

AP0047244

Ref. Code: *UR 0504*

PRIMARY SOURCE: *D* ~~Terapevticheskiy Arkhiv~~, 1970, Vol 42, Nr 1, PP *94-97*

ETIOLOGY AND PATHOGENESIS OF CHRONIC  
INFLAMMATORY DISEASES OF THE RESPIRATORY ORGANS

V. V. Dubilev, P. V. Dubilev, L. D. Khorushavin

A total of 1100 patients with inflammatory diseases of the respiratory organs (bronchitis bronchoectatic disease, pneumonia and pneumosclerosis) were observed, the microflora of their sputum taken from the oral cavity was studied by means of a bronchoscope and during the operation. The presence of constantly mixed coccal flora in patients allowed the authors to make a conclusion that infection is an indispensable factor in the development of the inflammatory process in the respiratory organs. The analysis of the anamnestic data and clinical manifestations of the disease enabled the authors to single out the main etiological factors which lead to the development of the disease — droplet infection of children and influenza. Alcohol, smoking, overcooling can be regarded as contributing factors in the development of the disease but not influencing the clinical course.

The authors made experiments on 120 animals (rabbits) in whom they disturbed the nervous regulation of the respiratory organs (vagus dissection), created a depot of infection in the major bronchi and acted upon the animals by overcooling, as a result of which the authors received a model of an inflammatory disease of the respiratory organ which fully resembled the one observed in patients (bronchitis, emphyzema, pneumonia and pneumosclerosis).

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Acc. Nr:

AP0047244

Ref. Code: UR 0504

PRIMARY SOURCE: Terapevticheskiy Arkhiv, 1970, Vol 42, Nr 1 ,  
pp 94-97

ETIOLOGY AND PATHOGENESIS OF CHRONIC  
INFLAMMATORY DISEASES OF THE RESPIRATORY ORGANS

V. V. Dubilek, P. V. Dubilek, L. D. Khorushavin

A total of 1100 patients with inflammatory diseases of the respiratory organs (bronchitis bronchoectatic disease, pneumonia and pneumosclerosis) were observed, the microflora of their sputum taken from the oral cavity was studied by means of a bronchoscope and during the operation. The presence of constantly mixed coccal flora in patients allowed the authors to make a conclusion that infection is an indispensable factor in the development of the inflammatory process in the respiratory organs. The analysis of the anamnestic data and clinical manifestations of the disease enabled the authors to single out the main etiological factors which lead to the development of the disease — droplet infection of children and influenza. Alcohol, smoking, overcooling can be regarded as contributing factors in the development of the disease but not influencing the clinical course.

The authors made experiments on 120 animals (rabbits) in whom they disturbed the nervous regulation of the respiratory organs (vagus dissection), created a depot of infection in the major bronchi and acted upon the animals by overcooling, as a result of which the authors received a model of an inflammatory disease of the respiratory organ which fully resembled the one observed in patients (bronchitis, emphyzema, pneumonia and pneumosclerosis).

REEL/FRA  
19790751

USSR

AZAROV, M. I., DUBILOVICH, V. M.

"Interpretation of a Relative 'Black Box'"

Vychisl. Tekhn. v Mashinostr., Nauch.-Tekhn. Sb. [Computer Technology and Machine Building, Scientific and Technical Collection], December 1971, pp 17-21 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V711, by the authors).

Translation: The determination of properties of a control object is studied. The object is described by a diagram of states, satisfying certain conditions which allow a simple, conditional interpretation algorithm to be defined and the length of the corresponding experiment to be estimated. Examples of interpretation of such objects are presented.

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USSR

DUBILOVICH, V. M.

"Areas of Stability of Automatic Regulation Systems"

Oblasti Ustoychivosti Sistem Avtomaticheskogo Regulirovaniya [English version above],  
Minsk, 1971, 141 pp.

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USSR

UDC 621.317.752

DUBIN, V. F., GAMAYUNOV, G. K., POPOV, L. F.

"Contact Device of an Automatic Machine for Sorting Integrated Circuits"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 8, Mar 71, Author's Certificate No 296290, division H, filed 20 Oct 69, published 12 Feb 71, pp 198-199

Translation: This Author's Certificate introduces a contact device of an automatic machine for sorting integrated circuits. The device contains a two-sided printed-circuit board with a central opening and contacts equal in number to the wires, a clip for holding the integrated circuit, and a drive mechanism with cams. As a distinguishing feature of the patent, measurement accuracy and contact reliability are improved and the capacitance between contacts is reduced by radial location of contacts in the form of releasable spring clamps on both sides of the printed-circuit board around the central opening. Contact is made between the leads of the circuit to be tested and the contacts on the circuit board by means of clips made in the form of spring-loaded hooks radially located with respect to the opening in the circuit board.

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Gerontology

USSR

UDC 577.14.612.67/68

DUBINA, T. L., Gerontology Sector, Academy of Sciences BSSR

"Effect of Complexons on the Aging Processes"

Minsk, Doklady Akademii Nauk BSSR, Vol 14, No 9, 1970, pp 860-862

Abstract: Forty Wistar rats injected intraperitoneally with ethylenediamine-tetraacetate (EDTA) had an average life span of 803 days as compared to 777 days for the controls. Sixteen additional rats that received EDTA with their food lived an average of 734 days, as compared to 688 days for the controls. Peroral administration does not create as high a concentration of the complexon as parenteral injection, owing to poor absorption in the gastrointestinal tract; the resulting low concentration is insufficient to interfere significantly with mineral metabolism. The favorable effect of periodic administration of EDTA on the survival rate of old rats confirms the hypothesis that metals are a major factor in aging. The mechanism of action of this agent appears to be as follows: By binding the metals (calcium, zinc, copper, iron, etc.) which are present in blood serum and eliminating them from the organism, EDTA helps to bring about a new equilibrium as a result of the outflow of metals from tissues into the vascular bed. The first metals to leave the

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DUBINA, T. L., Doklady Akademii Nauk BSSR, Vol 14, No 9, 1970, pp 860-862

cells are those which are nonspecifically bound to proteins and nucleic acids.  
Part of the essential elements lost are quickly replenished after ingestion  
of food.

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1/2 022 UNCLASSIFIED PROCESSING DATE--30OCT70  
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PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0127953

ABSTRACT/EXTRACT--(U) GP-0-- ABSTRACT. YEASTS WERE CULTIVATED IN MEDIUM  
CONTG. ALANINE, 2, PRIME 14 C, THEN ADDED TO WINE (10.8 PERCENT ALC., PH  
3.0, SD SUB 2.120 PPM). RADIOACTIVITY OF THE WINE, WHICH WAS KEPT AT  
MINUS 5, 5, 18, AND 40 DEGREES, WAS MEASURED FOR 6 SUBSEQUENT DAYS. NO  
RADIOACTIVITY WAS OBSD. IN WINE KEPT AT MINUS 5 DEGREES AND 5 DEGREES.  
YEASTS CELLS WERE PHYSICALLY NORMAL. A SLIGHT INCREASE IN RADIOACTIVITY  
WAS OBSD. IN THE WINE KEPT AT 18 DEGREES. AT 40 DEGREES 30 PERCENT OF THE  
TOTAL RADIOISOTOPE WAS FOUND IN THE WINE AFTER 24 HR AND 90-5 PERCENT OF  
YEASTS CELLS WERE DEAD. THE PRESENCE OF SUGAR IN WINE DECREASED  
AUTOLYSIS OF THE YEAST. FACILITY: VSES. ZAOCH. INST. PISHCH.  
PROM., MOSCOW, USSR.

UNCLASSIFIED



USSR

*D* UDC:621.313.12:539.172.12

BOL'SHOV, V. I., DUBININ, A. A., DMITRIYEV, V. M., KAPCHIGASHEV, S. P., KON'SHIN, ~~V. A.~~, MATUSEVICH, YE. S., POLIVANSKIY, V. P., PUPKO, V. Ya., REGUSHEVSKIY, V. I., STAVISSKIY, Yu. Ya., and YUR'YEV, Yu. S.

"Physical Investigation of the Target in an Electronuclear Neutron Flux Generator"

Moscow, Atomnaya Energiya, Vol 28, No 5, May 70, pp 388-392

Abstract: Fluxes of thermal neutrons on the order of  $10^{17}$ - $10^{18}$  n/cm<sup>2</sup>·sec open new possibilities for investigations in many areas of science and technology. There is great interest in the study of the possibility for increasing neutron fluxes by using the process of multiple neutron birth upon interaction of nucleons with energies in the hundreds of MeV with heavy nuclei. This article presents the results of experiments and calculations concerning the neutron-physical characteristics

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BOL'SHOV, V. I., DUBININ, A. A., DMITRIYEV, V. M., KAPCHIGASHEV, S. P., KON'SHIN, V. A., MATUSEVICH, Y. E. S., TOLIVANSKIY, V. P., TUPKO, V. Ya., REGUSHEVSKIY, V. I., STAVISSKIY, Yu. Ya., YUR'YEV, Yu. S., Moscow, Atomnaya Energiya, Vol 28, No 5, May 70, pp 388-392

of the target in an electronuclear device for the generation of neutron fluxes. The yield of neutrons and distribution of the number of reactions in a heavy target and moderator are measured. The space-energy distribution of neutron flux in the moderator is calculated and the accumulation of transuranium elements in a system with high neutron flux is computed.

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USSR

UDC: 533.95:537.84

DUBININ, E. M., PODGORNYI, I. M.

"The Geomagnetic Tail in Experiments With a Three-Dimensional Terrella"

Leningrad, IV Leningr. mezhdunar. seminar "Yedinoobraznye uskoreniya chastits v razlich. masshtabakh kosmosa", 1972--sbornik (Fourth Leningrad International Seminar on the Uniformity of Particle Acceleration on Different Scales of the Universe, 1972--collection of works), 1972, pp 293-294 (from RZh-Fizika, No 6, Jun 73, abstract No 6G13 [Résumé])

Translation: The paper describes experiments on modeling the geomagnetic tail when a plasma flux interacts with the magnetic field of a three-dimensional dipole. The plasma parameters are chosen on the basis of the principle of bounded modeling. The magnetic field in the plasma layer is not regular in nature. For average values of the field direction in the tail a pronounced neutral line is observed at a distance of approximately 10 cm from the center of the dipole. The distance from the center of the dipole to the shock wave on the daylight side is also about 10 cm. The fast electrons specially introduced into the solar wind simulation are detected in the plasma layer.

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USSR

UDC 620.193.4

MULYAKAYEV, L. M., DULININ, G. N., DALISOV, V. B., POLUBOYARTSEVA, L. A.,  
MANTOROVA, T. M., and REYFER, A. A., Moscow Aviation Institute imeni  
Sergo Ordzhonikidze

"Corrosion Resistance of Diffusion Chrome Plated Steel in Certain Mediums"

Moscow, Zashchita Metallov, Vol. 9, No 1, Jan-Feb 73, pp 66-70

Abstract: A study was made of the corrosion behavior of chrome plated steels in a series of industrial aggressive media. Specimens of carbon steels (brands 35 and 45) and of OKh21N5T austenitic-ferritic class steel were chromated according to a technology developed by the Chair of Aviation Science of Metals of Moscow Aviation Institute; their diffusion layer was x-ray-analyzed and its thickness and microhardness measured. Corrosion resistance curves of brand 45 steel before and after diffusion chrome plating at 1100° for 10 hrs show that diffusion chromating protects brand 45 steel against corrosion in a 15% solution of tartaric acid and in a 3% solution of table salt, but does not reliably protect it in a concentrated freon solution widely used in refrigerating plants at operating conditions of 300° and 60 at. Results of corrosion tests under industrial conditions of up to two years duration of brand 35 steel and OKh21N5T steel, chromated and not chromated, are shown. The corrosion rate of brand 35 steel subjected to the action of an aggressive  
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